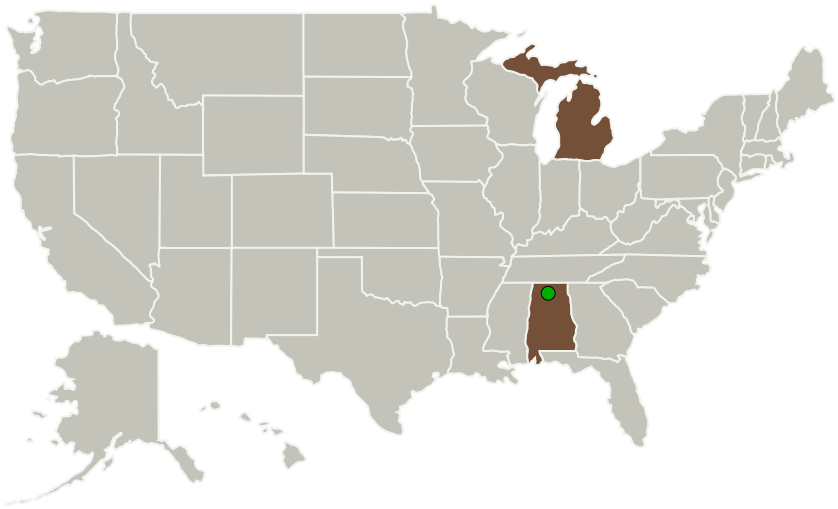
eVADE: Volcanic Ash Detection Raman LIDAR, Phase I

Completed Technology Project (2015 - 2015)

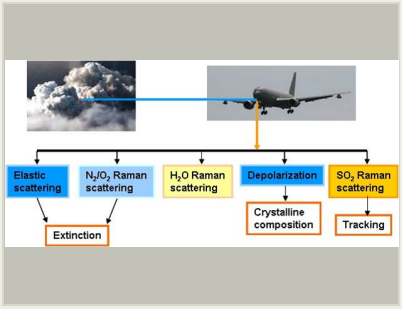
Project Introduction

Volcanic ash is a significant hazard to aircraft engine and electronics and has caused damage to unwary aircraft and disrupted air travel for thousands of travelers, costing millions of dollars. Michigan Aerospace Corporation (MAC) proposes to demonstrate the concept feasibility of a Raman Light Detection and Ranging (LIDAR) system to obtain real-time information from volcanic ash clouds and other aerosols, to be named eVADE (Volcanic Ash DEtection Raman LIDAR). The instrumentation will also be suitable for atmospheric dust transport measurements. Atmospheric dust plays a significant role in climate modeling; unlike volcanic ash that reflects the solar heating back into the upper atmosphere, dust absorbs the heat locally and causes heating of the troposphere. eVADE will be designed to operate from an airborne platform (manned or unmanned), and as such, will be compact and light weight.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Michigan Aerospace Corporation	Lead Organization	Industry	Ann Arbor, Michigan
Marshall Space Flight Center(MSFC)	Supporting Organization	NASA Center	Huntsville, Alabama



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Primary U.S. Work Locations	
Alabama	Michigan

Project Transitions

June 2015: Project Start

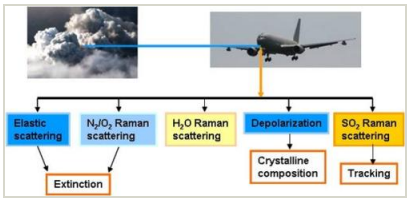
December 2015: Closed out

Closeout Summary: eVADE: Volcanic Ash Detection Raman LIDAR, Phase I Project Image

Closeout Documentation:

- Final Summary Chart Image*(https://techport.nasa.gov/file/138984)*

Images



Briefing Chart Image
eVADE: Volcanic Ash Detection Raman LIDAR, Phase I *(https://techport.nasa.gov/image/134860)*

Organizational Responsibility

Responsible Mission Directorate:
Space Technology Mission Directorate (STMD)

Lead Organization:
Michigan Aerospace Corporation

Responsible Program:
Small Business Innovation Research/Small Business Tech Transfer

Project Management

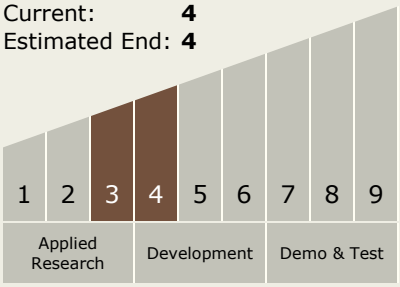
Program Director:
Jason L Kessler

Program Manager:
Carlos Torrez

Principal Investigator:
Dominique Fourguette

Technology Maturity (TRL)

Start: **3**
Current: **4**
Estimated End: **4**



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Technology Areas

Primary:

- TX08 Sensors and Instruments
  - TX08.3 In-Situ Instruments and Sensors
    - TX08.3.4 Environment Sensors

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System